

REMARKS

The Examiner is thanked for the thorough review and consideration of the present application. The final Office Action dated January 14, 2004 has been received and its content carefully reviewed. Applicants acknowledge the withdrawal of the 35 U.S.C. § 112, first paragraph rejection.

By this Response, Applicants have amended claims 1, 2, 16 and 30, and amended FIGs. 1-7D to remove "Related Art" from the legend and replace it with "Prior Art". Applicants also resubmit the Annotated Sheet showing changes to FIGs. 10C and 10D along with the Replacement Sheet because of a typographical error in one digit of the serial number provided on the labels of the drawing sheets filed on September 3, 2003. No new matter has been added. Reconsideration and withdrawal of the objection and rejections in view of the above amendments and the following remarks are requested.

In the Office Action, FIGs 1-7D were objected to because the Examiner indicated "Prior Art" should be designated in the legend. Also, the Office Action noted that the drawings filed on September 3, 2003 cited the wrong Application number, "but the proposed correction of the labeling would be approved by the Examiner". Applicants have amended FIGs. 1-7D to include "Prior Art" in the legend, and resubmit the Annotated Sheet showing changes and the Replacement Sheet for FIGs. 10C and 10D with the correct Application number. Accordingly, the objection is overcome.

In the Office Action, claims 1, 7-16 and 24-29 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicants' Prior Art (APA) in view of Japanese Patent Abstract Publication 2000-111957, issued to Michiaki et al. (hereafter "Michiaki"). Applicants traverse the rejection because neither the APA nor Michiaki, analyzed alone or in any combination, teaches or suggests the combined features recited in the claims of the present application. For example, the APA and Michiaki fail to teach or suggest an in-plane switching liquid crystal display device that includes, among other features, "a plurality of common electrodes in contact with the first passivation layer; a second passivation layer on the first passivation layer, wherein the second passivation layer is an inorganic material" and "a plurality of pixel electrodes on the second passivation layer", as recited in independent claim 1; and a method of fabricating an array substrate that includes "forming a plurality of common electrodes in contact with the first passivation layer; forming a second passivation layer on the first passivation layer, wherein the

second passivation layer is an inorganic material; and forming a plurality of pixel electrodes on the second passivation layer”, as recited in independent claim 16.

Applicants note the overcoat layer 112 of Michiaki is made of an organic material. In particular, “the overcoat layer 112, which consists of a transparent insulating material is formed on the light-filter layer 110 and the shading section 111 including the common electrode 103. Thermosetting resin, such as acrylic resin, should be used for this overcoat layer 112.” (see, paragraph [0031]). As such, Michiaki fails to teach or suggest a second passivation layer of an inorganic material, as recited in independent claims 1 and 16.

Applicants further note the Office Action has incorrectly equated the protective coat 108 and overcoat layer 112 of Michiaki to the first passivation layer and second passivation layer, respectively, recited in the claims of the present application. Applicants respectfully disagree with the Office Action, and submit the device disclosed in Michiaki fails to fulfill the requirements recited in the claims of the present application.

Specifically, the Office Action relies upon Drawing 1 to state “Michiaki teaches in Drawing 1, the use of a common electrode, 103, on a protective coat, 108 (Applicant’s first passivation layer); an overcoat layer, 112 (Applicant’s second passivation layer) on the first passivation layer”. However, Applicants submit, as depicted in Drawing 1 and discussed in paragraphs [0022] and [0023] of Michiaki, the “common electrode 103 is covered and arranged in the overcoat layer 112 on the shading section 111” (emphasis added). Further, “the common electrode 103 has the composition that it has been arranged on the light-filter layer 110, and the pixel electrode 114 has been arranged on the overcoat layer 112 currently formed so that the common electrode 103 and the light-filter layer 110 may be covered.” Therefore, Applicants respectfully submit that if the rationale of the Office Action were true, meaning the protective coat 108 and overcoat layer 112 of Michiaki were equivalent to the first and second passivation layers, respectively, of the present application), then the common electrode 103 would have to in contact with the protective coat 108. And, that simply is not the case, as illustrated in Drawing 1 of Michiaki. As such, Michiaki fails to teach or suggest “a plurality of common electrodes in contact with the first passivation layer; a second passivation layer on the first passivation layer, wherein the second passivation layer is an inorganic material”, as recited in independent claim 1. Michiaki further fails to teach or suggest a method that includes “forming a plurality of common electrodes in contact with the first passivation layer; forming a second passivation layer on the

first passivation layer, wherein the second passivation layer is an inorganic material”, as recited in claim 16.

Because Michiaki fails to teach or suggest at least the above features of independent claims 1 and 16, Michiaki does not remedy the deficient teachings of the APA. Thus, no combination of the APA and Michiaki would provide an in-plane switching liquid crystal display device and method of fabricating that include the combined features recited in independent claims 1 and 16 and presented above. Accordingly, independent claim 1 and its rejected, dependent claims 7-15, and independent claim 16 and its rejected, dependent claims 24-29 are allowable over the APA and Michiaki. Reconsideration and withdrawal of the rejection are requested.

In the Office Action, claims 2-3 and 17-20 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the APA in view of Michiaki and further in view of U.S. Patent No. 6,356,328, issued to Shin et al. (hereafter “Shin”). Claims 4 and 23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over APA in view of Michiaki and further in view of U.S. Patent No. 6,163,355, issued to Chang et al. (hereafter “Chang”). Claims 5-6 and 21-22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the APA in view of Michiaki and further in view of U.S. Patent No. 6,414,729, issued to Akiyama et al. (hereafter “Akiyama”). Applicants traverse the rejections because no combination of the APA, Michiaki, Shin, Chang nor Akiyama teach or suggest the combined features recited in the claims of the present application. Specifically, no combination of the APA, Michiaki, Shin, Chang and Akiyama teach or suggest “a plurality of common electrodes in contact with the first passivation layer”, as recited in independent claim 1, and “forming a plurality of common electrodes in contact with the first passivation layer”, as recited in independent claim 16.

Further, Applicants respectfully submit Shin, Chang and Akiyama fail to remedy the deficient teachings discussed above with respect to the APA and Michiaki. Therefore, no combination of Shin, Chang, Akiyama, when used to modify the APA and Michiaki as suggested in the Office Action, would provide a device and method of manufacturing an array substrate that would provide the combined features recited in independent claims 1 and 16 of the present application. By virtue of their dependence from independent claims 1 and 16, rejected claims 2-15 and 17-29 also contain the patentable features recited in claims 1 and 16. As such, claim 1 and its dependent claims 2-15, and claim 16 and its dependent claims 17-29 are

patentable over any combination of the APA, Michiaki, Shin, Chang and Akiyama.

Reconsideration and withdrawal of the rejections are requested.

In the Office Action, claims 30 and 31 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the APA in view of Michiaki and further in view of U.S. Patent No. 6,300,995, issued to Wakagi et al. (hereafter "Wakagi"). Claims 32 and 33 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the APA in view of Michiaki and Wakagi and further in view of Shin. Claim 34 is rejected under 35 U.S.C. § 103(a) as being unpatentable over the APA in view of Michiaki and Wakagi and further in view of Chang. And, claims 35 and 36 are rejected under 35 U.S.C. § 103(a) as being unpatentable over the APA in view of Michiaki and Wakagi and further in view of Akiyama. Applicants traverse the rejections because no combination of the APA, Michiaki, Wakagi, Shin, Chang nor Akiyama teaches or suggests an in-plane switching liquid crystal display device that includes, among other features, "a plurality of common electrodes in contact with the second insulation layer, wherein the common electrodes contact the common line via the first contact holes;... a third insulation layer on the common electrodes and the second insulation layer, wherein the third insulation layer is an inorganic material", as recited in independent claim 30.

Applicants note it appears the Office Action has incorrectly equated the first passivation layer and the second passivation layer of the APA to the second insulation layer and third insulation layers recited in Applicants' claim 30. Applicants respectfully point out the APA discloses a gate insulation layer 70 and a passivation layer 74. The APA does not disclose a third insulation layer as recited in claim 30 of the present application.

The Office Action concedes that "Michiaki does not explicitly disclose a device wherein a plurality of first contact holes through the first and second insulation layers over the common line; and a plurality of common electrodes on the second insulation layer, wherein the common electrodes contact the common line via the first contact holes." To remedy the deficient teachings of Michiaki, the Office Action relies upon the teachings of Figures 6 and 7 in Wakagi.

Wakagi discloses a liquid crystal display device having "plural gate electric wiring, plural drain electric wiring intersecting therewith in a matrix state, plural thin film transistors formed opposite to each intersection of the gate and drain electric wiring, and plural common electric wiring extending in the same direction as the gate electric wiring" (col. 2, lines 11-18). However, Applicants respectfully submit Wakagi fails to teach or suggest "a third insulation

layer on the common electrodes and the second insulation layer, wherein the third insulation layer is an inorganic material; a second contact hole through the second and third insulation layers over a drain electrode of the thin film transistor”, as recited in independent claim 30.

Further, Shin, Chang and Akiyama, like the APA, Michiaki and Wakagi, fail to teach or suggest “a third insulation layer on the common electrodes and the second insulation layer, wherein the third insulation layer is an inorganic material; a second contact hole through the second and third insulation layers over a drain electrode of the thin film transistor”, as recited in independent claim 30. Because Shin, Chang and Akiyama also fail to teach or suggest at least these features of independent claim 30, no combination of the APA, Michiaki, Wakagi, Shin, Chang and Akiyama would provide a device having the combined features recited in claim 30. As such, claim 30 is allowable over any combination of the APA, Michiaki and Wakagi.

By virtue of their dependence from claim 30, rejected dependent claims 31-36 also contain the patentable features recited in claim 30. Accordingly, independent claim 30 and its dependent claims 31-36 are patentable over any combination of the APA, Michiaki, Wakagi, Shin, Chang and Akiyama. Reconsideration and withdrawal of the rejections are requested.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to pass this application to issue. If the Examiner deems that a telephone conversation would further the prosecution of this application, the Examiner is invited to call the undersigned at (202) 496-7500.

Application No.: 09/901,079
Amendment dated April 14, 2004
Reply to final Office Action dated January 14, 2004

Docket No.: 8733.464.00-US

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911. A duplicate copy of this sheet is enclosed.

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Attachments